

## PATENT ABSTRACTS OF JAPAN

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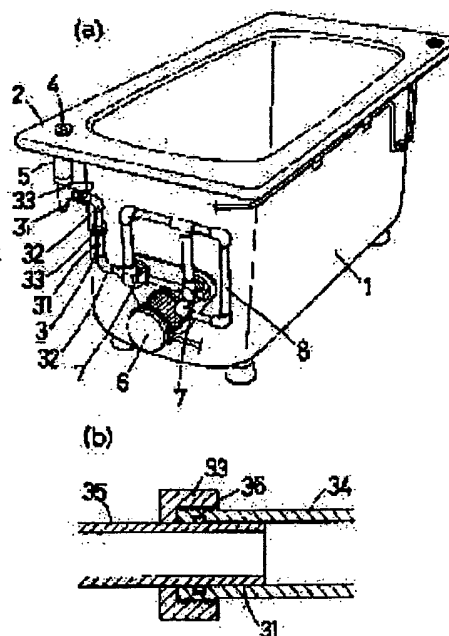
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## (54) AIR INTAKE PIPING STRUCTURE FOR JET BATH

## (57)Abstract:

PURPOSE: To provide the air intake piping structure of a jet bath capable of coping and being executed even when the size of a bathtub is different.

CONSTITUTION: In this air intake piping structure of the jet bath provided with an air intake piping part 3 constituted of straight pipes 31 and elbow joint pipes 32 for connecting the straight pipes 31 each other at a right angle for supplying air to a jet stream pipe 8 for jetting a jet stream inside the bathtub 1 by the air intake piping part 3, the straight pipes 31 are freely extendable and contractable.



## LEGAL STATUS

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**CLAIMS**

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[Claim(s)]

[Claim 1] Air intake piping structure of the jet bus characterized by straight tubing being elastic in the air intake piping structure of a jet bus where air is supplied to the jet stream pipe which is equipped with the air intake piping section which consists of elbow-fitting tubing which connects straight tubing and these straight tubing to a right angle, and spouts a jet stream in an organ bath by this air intake piping section.

[Claim 2] Air intake piping structure of the jet bus according to claim 1 characterized by straight tubing consisting of an outer tube and an inner tube which extends free [ insertion and detachment ] from the inside of this outer tube.

[Claim 3] Air intake piping structure of the jet bus according to claim 1 characterized by equipping straight tubing with the bellows portion which has elastic flexibility.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the air intake piping structure of a jet bus.

[0002]

[Description of the Prior Art] The jet bus used in an organ bath 1 from the former, making a jet stream blow off in case a bath is taken, as shown in drawing 3 is used. Generally, the connecting piping of the jet bus is carried out to the pump 6, and with this pump 6, the water absorption pipe (not shown) and the jet stream pipe 8 which carry out opening into an organ bath 1 attract the water in an organ bath 1 from a water absorption pipe, make this water a jet stream, and spout it in an organ bath 1 from the jet stream pipe 8. And in order to make a jet stream mix air bubbles in the jet stream pipe 8 in this side of the jet injection tip 7 into an organ bath 1, the end of the air intake piping section 9 which supplies air in the jet stream pipe 8 is connected, and the other end of this air intake piping section 9 is connected to the trap tubing 5 which equipped flange 2 top face of an organ bath 1 with the air inhalation opening 4. This air intake piping section 9 consists of elbow-fitting tubing 92 which connects the straight tubing 91 and this straight tubing 91 to a right angle.

[0003]

[Problem(s) to be Solved by the Invention] By the way, generally as an organ bath 1 used as a jet bus, there is a thing of various sizes. Although the jet stream pipe 8 was the same and it could respond by setting constant the physical relationship of a pump 6 and the jet injection tip 7 when the sizes of each organ bath 1 differed in this way conventionally. On the other hand, if it is in the air intake piping section 9. Since the location of the air inhalation opening 4 (trap 5) would change with sizes of each organ bath 1 and the distance of the jet stream pipe 8 and the air inhalation opening 4 (trap 5) would change according to this, the die length of piping needed to be designed according to the size of each organ bath 1.

[0004] As the design approach of the die length of piping of this air intake piping section 9. For example, prepare various sizes for the straight tubing 91 which constitutes the air intake piping section 9 beforehand, and although it cuts or there is an approach which has added enough and is carried out, the approach of choosing the thing of the size corresponding to each organ bath 1, in case it constructs, or the straight tubing 91, so that it may become the size corresponding to each organ bath 1. At the former, the inventory of a majority of various sizes needed to be prepared as straight tubing 91, effectiveness was bad and, on the other hand, there was a fault of taking the time and effort which processes the straight tubing 91, by the latter.

[0005] This invention was made in view of the above-mentioned situation, and even if it is the case where the sizes of an organ bath differ, it offers the air intake piping structure of the jet bus which can be responded and constructed.

[0006]

[Means for Solving the Problem] The air intake piping structure of the jet bus concerning claim 1 is equipped with the air intake piping section which consists of elbow-fitting tubing which connects straight tubing and these straight tubing to a right angle, and is characterized by straight tubing being elastic in the air intake piping structure of a jet bus where air is supplied to the jet stream pipe which spouts a jet stream in an organ bath by this air intake piping section.

[0007] Air intake piping structure of the jet bus concerning claim 2 is characterized by straight

tubing consisting of an outer tube and an inner tube which extends free [ insertion and detachment ] from the inside of this outer tube in the air intake piping structure of a jet bus according to claim 1.

[0008] Air intake piping structure of the jet bus concerning claim 3 is characterized by equipping straight tubing with the bellows portion which has elastic flexibility in the air intake piping structure of a jet bus according to claim 1.

[0009]

[Function] According to the air intake piping structure of the jet bus concerning claim 1, the die length of piping of the air intake piping section can be changed free by making straight tubing expand and contract. Therefore, it can pipe easily, without exchanging straight tubing or carrying out cutting, an extension, etc., even if it originates in the sizes of the organ bath of a jet bus differing and the physical relationship of air inhalation opening and a jet stream pipe differs.

[0010] Straight tubing can expand and contract, and since straight tubing consists of an outer tube and an inner tube which extends free [ insertion and detachment ] from the inside of this outer tube in the air intake piping structure of a jet bus according to claim 1 according to the air intake piping structure of the jet bus concerning claim 2, the die length of piping of the air intake piping section can be changed free by making it insert [ inner tube ] to an outer tube.

[0011] Straight tubing can expand and contract, and since straight tubing is equipped with the bellows portion which has elastic flexibility in the air intake piping structure of a jet bus according to claim 1 according to the air intake piping structure of the jet bus concerning claim 3, the die length of piping of the air intake piping section can be changed free by making this bellows portion expand and contract. Moreover, since the bellows portion of straight tubing has flexibility, flexible nature is given to the whole piping, and even if it pipes in the distorted condition somewhat, it is connectable [ bellows portion ] reasonable.

[0012]

[Example] Hereafter, it explains based on the drawing in which the example of this invention was shown. Drawing 1 (a) is the perspective view of the jet bus which adopted the air intake piping structure of the jet bus concerning one example of this invention, and (b) is the important section sectional view of straight tubing in the air intake piping structure of the jet bus concerning (a).

[0013] The air intake piping structure of the jet bus applied to this example like illustration It has the air intake piping section 3 constituted by combining the elbow-fitting tubing 32 which connects straight tubing 31 and this straight tubing 31 comrades to a right angle, and connecting. By this air intake piping section 3 In the air intake piping structure of a jet bus where the jet stream pipe 8 and \*\* which spout a jet stream are open for free passage, and are connected with the air inhalation opening 4 prepared in the organ bath 1 into an organ bath 1, the straight tubing 31 is elastic.

[0014] Hereafter, the flange 2 is formed in the upper limit periphery of an organ bath 1 if this example is explained in detail. The trap 5 equipped with the air inhalation opening 4 which penetrates a flange 2 up and down and carries out opening to the upper part is formed in the one corner section of this flange 2. This trap 5 builds the silencer, the dust \*\*\*\* filter, etc. in the interior.

[0015] The pump 6 which is the source of power which builds a jet stream is attached in the external surface of the side attachment wall which, on the other hand, adjoins the corner section in which the air inhalation opening 4 in an organ bath 1 carries out opening. The water absorption pipe (not shown) and the jet stream pipe 8 which open for free passage, respectively and carry out opening into an organ bath 1 are connected with this pump 6, water is attracted through a water absorption pipe from the inside of an organ bath 1 with this pump 6, and it spouts from the jet injection tip 7 which carries out opening into an organ bath 1 through the jet stream pipe 8 by making this water into a jet stream. This jet injection tip 7 is formed in two right and left of the pump 6 upper part in the side attachment wall of an organ bath 1, and on the way, the jet stream pipe 8 branches to two, is piped, and is connected to the jet injection tips 7 and 7 on either side, respectively.

[0016] A trap 5 and the jet stream pipe 8 equipped with the air inhalation opening 4 are open for free passage with the air intake piping section 3, and are connected. That is, in this side of the jet injection tip 7 into an organ bath 1, the end of the air intake piping section 3 is connected to the jet stream pipe 8, and the other end of this air intake piping section 3 is connected to the trap 5. If a jet stream flows to the jet stream pipe 8, like an ejector, air will be incorporated from the air intake pipe 3 in a jet stream, and it will become air bubbles, and will blow off into an organ bath 1 with a jet

stream.

[0017] This air intake piping section 3 is constituted by carrying out connecting piping combining the straight tubing 31 and the elbow-fitting tubing 32. In this example, the straight tubing 31 and two members of elbow-fitting tubing 32 are used at a time.

[0018] If arrangement with these straight tubing 31 and elbow-fitting tubing 32 is explained, in this side of the jet injection tip 7, the tee is horizontally prepared from the jet stream pipe 8, and one elbow-fitting tubing 32 is connected to this tee. Opening of the other end of this elbow-fitting tubing 32 is carried out to the upper part, the end section of one straight tubing 31 is inserted and connected to this, and this straight tubing 31 is piped by vertical facing up. The elbow-fitting tubing 32 of another side has fitted into this straight tubing 31 upper limit, opening of the other end of this elbow-fitting tubing 32 is carried out to horizontally it goes to a trap 5, the end of the straight tubing 31 of another side is inserted and connected to this, this straight tubing 31 is piped horizontally and the other end of this straight tubing 31 is connected to the trap 5.

[0019] As the straight tubing 31 shows drawing 1 (b), it is constituted from the outer tube 34 and the inner tube 35 which extends free [ insertion and detachment ] from the inside of this outer tube 34 by this example. The annular packing 36 holding the airtightness of outer-tube 34 inner skin and inner-tube 35 peripheral face is attached around the inner circumference of the edge where the inner tube 35 in this outer tube 34 extends free [ insertion and detachment ]. Moreover, the male screw is formed in the periphery of the edge where the inner tube 35 in an outer tube 34 extends free [ insertion and detachment ], and the cap nut 33 is screwing on this male screw. When this cap nut 33 is bound tight, an inner tube 35 is fixed to an outer tube 34. since die length can be made to expand and contract by this straight tubing's 31 loosening a cap nut 33, and making it insert [ inner tube / 35 ], the air intake piping section 3 changes piping die length into the upper and lower sides and right and left -- this -- it can \*\* now.

[0020] Drawing 2 (a) is the perspective view of the jet bus which adopted the air intake piping structure of the jet bus concerning other examples of this invention, and (b) is the important section sectional view of straight tubing in the air intake piping structure of the jet bus concerning (a).

[0021] As for this example, the bellows portion 37 in which the modes of said example and straight tubing 31 differ, and have elastic flexibility is formed. a bellows portion 37 expands and contracts this straight tubing 31 like an accordion, and, thereby, the air intake piping section 3 changes piping die length into the upper and lower sides and right and left -- this -- it can \*\* now. Moreover, since flexible nature is given to the air intake piping section 3 by the flexibility which a bellows portion 37 has, even if it pipes in the distorted condition somewhat, it can connect reasonable.

[0022]

[Effect of the Invention] According to the air intake piping structure of the jet bus concerning claim 1, the die length of piping of the air intake piping section can be changed free by making straight tubing expand and contract. Therefore, it can pipe easily, without exchanging straight tubing or carrying out cutting, an extension, etc., even if it originates in the sizes of the organ bath of a jet bus differing and the physical relationship of air inhalation opening and a jet stream pipe differs.

[0023] Straight tubing can expand and contract, and since straight tubing consists of an outer tube and an inner tube which extends free [ insertion and detachment ] from the inside of this outer tube in the air intake piping structure of a jet bus according to claim 1 according to the air intake piping structure of the jet bus concerning claim 2, the die length of piping of the air intake piping section can be changed free by making it insert [ inner tube ] to an outer tube.

[0024] Straight tubing can expand and contract, and since straight tubing is equipped with the bellows portion which has elastic flexibility in the air intake piping structure of a jet bus according to claim 1 according to the air intake piping structure of the jet bus concerning claim 3, the die length of piping of the air intake piping section can be changed free by making this bellows portion expand and contract. Moreover, since the bellows portion of straight tubing has flexibility, flexible nature is given to the whole piping, and even if it pipes in the distorted condition somewhat, it is connectable [ bellows portion ] reasonable.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] (a) is the perspective view of the jet bus which adopted the air intake piping structure of the jet bus concerning other examples of this invention, and (b) is the important section sectional view of straight tubing in the air intake piping structure of the jet bus concerning (a).

[Drawing 2] (a) is the perspective view of the jet bus which adopted the air intake piping structure of the jet bus concerning other examples of this invention, and (b) is the important section sectional view of straight tubing in the air intake piping structure of the jet bus concerning (a).

[Drawing 3] It is the perspective view of the jet bus which adopted the air intake piping structure of the conventional jet bus.

[Description of Notations]

- 1 Organ Bath
- 2 Flange
- 3 Air Intake Piping Section
- 4 Air Inhalation Opening
- 6 Pump
- 8 Jet Stream Pipe
- 31 Straight Tubing
- 32 Elbow-Fitting Tubing
- 34 Outer Tube
- 35 Inner Tube
- 37 Bellows Portion

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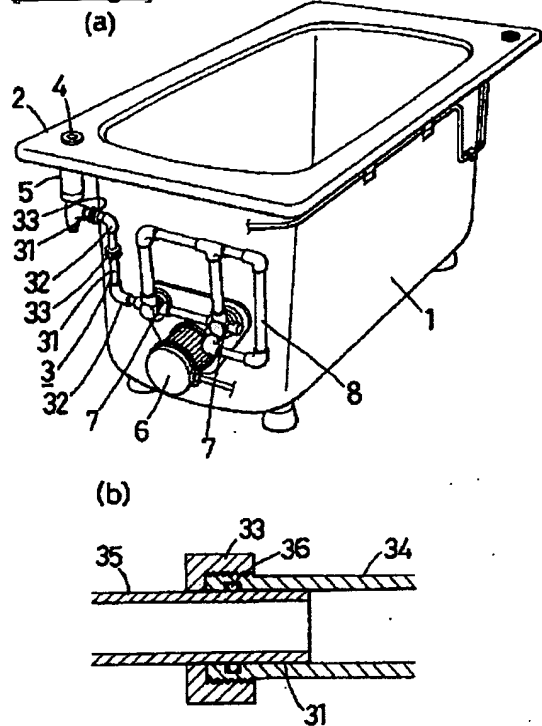
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DRAWINGS

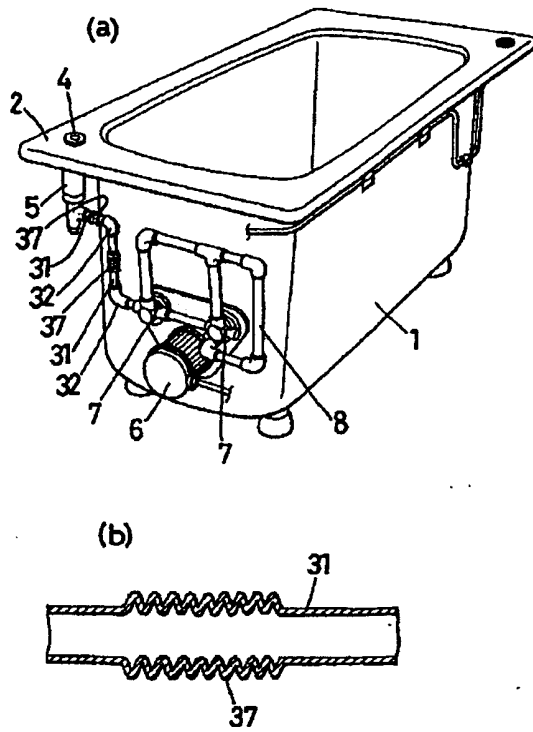
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[Drawing 1]

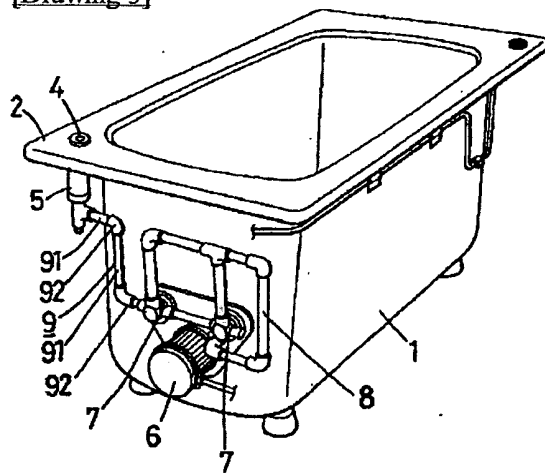


[Drawing 2]





[Drawing 3]



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